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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/998,073	11/30/2001	Gurtej S. Sandhu	MIO 0084 PA	4531

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EXAMINER

WINTER, GENTLE E

ART UNIT

PAPER NUMBER

1746

DATE MAILED: 04/04/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/998,073

Applicant(s)

SANDHU ET AL.

Examiner

Gentle E. Winter

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-63 is/are pending in the application.
- 4a) Of the above claim(s) 1-45 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 46-63 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-45 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election of Group II, claims 46-63, in Paper No. 3 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Objections

1. Claims 50, 52, 58, 59, and 61-63 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Specifically, claim 50, the recitation of specific wavelengths goes to a future intended use, the light is not operating except when in use. As to claim 52, the claim discloses a variable contingent on the type of gas used and how the optics are arranged. As to claim 58, the type of gas is not a structural limitation. As to claim 59, the type of article placed on the chuck is drawn to a future intended use. Finally, as to claims 61-63, the system of United States Patent No. 5,669,979 to Elliot could perform the recited functions when in operation. It is not clear what structural limitation is being claimed. The claims are rejected according to the base claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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2. Claims 46-63 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent No. 5,669,979 to Elliot et al. (Elliot).

3. As an initial matter, the claims are drawn to a "system". A "system" is an "apparatus." See *Ex parte Alfred A. Fressola* 27 U.S.P.Q.2d 1608 citing *In re Walter*, 618 F.2d 758, 762 n.2, 205 USPQ 397, 402 n.2 (CCPA 1980). As such, only structural limitations, or structural imparting functions are construed to properly limit the claims.

4. With specific respect to claim 46 requires an "inlet", presumably into some containment structure, for exposing a workpiece to gas. A radiation beam source adapted to converge in close proximity to the surface of the workpiece. Figure 15 of Elliot discloses, in figure 15, and associated text, an inlet (not shown but feeding element 434 which is a nozzle). The workpiece is disclosed as element 414. The radiation source (element 422) is disclosed as a laser. The beam is shown to converge at the workpiece see element 416.

5. As to claim 47 disclosing optics to focus the beam, element 428 is an optical focusing element, more specifically, a cylindrical mirror.

6. As to claim 48, disclosing a structure for causing relative motion between the surface and the beam, the stage (element 440) is disclosed to translate the chuck (element 436) and substrate (element 414) at a constant rate across the reaction chamber from a rear end (element 476) to a forward end (element 478). This translation provides the requisite relative motion.

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7. As to claim 49, disclosing a chamber having a window. The chamber (or containment system) was generally presumed to exist in claim 46. The chamber and window are similarly disclosed in figure 15. The chamber does not appear to be numbered but is explicitly disclosed at e.g. column 20, line 18 *et seq.* the window is explicitly disclosed, as such at see e.g. column 20, line 41 *et seq.* disclosing: “the chamber may have a flat window, with the converging lens or mirror located outside the chamber.”

8. As to claim 51, disclosing that the optics are such that beam convergence makes a “wide scanning beam”, the same is identically disclosed in *inter alia*, figures 2 and 2A. Referring to FIGS. 2 and 2A, the elongated dimension 46 of beam 42 at a substrate surface is selected based largely upon the size of the substrate to be cleaned. Thus the final beam striking the surface gives the appearance of a knife edge. Alternatively, flat mirror 40, may be replaced by a cylindrical focusing mirror 41, as shown in FIG. 2A. See e.g. column 9, line 66 *et seq.*

9. As to claim 53 disclosing an exhaust pump. The same is disclosed in figure 11 and associated text see e.g. column 17, line 38 *et seq.* Specifically an exhaust nozzle (element 292 in FIG. 11) is coupled to a vacuum pump (element 294) and provides a high velocity exhaust near the cloud of ablated foreign material to evacuate the reacted and unreacted ablation components in the cloud.

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10. As to claim 54, disclosing a nozzle. The nozzle is disclosed as element 434, in figure 15 and in associated text. The nozzle inherently could deliver a laminar flow, depending *inter alia* on the flowrate. Turbulence is a function of flowrate.

11. As to claim 55, disclosing a heater for heating the workpiece. As an initial matter the light source would heat the workpiece and as such the heater could be the light source. Nonetheless, figure 11A at element 284 and associated text discloses a heating element.

12. As to claim 56, disclosing a temperature sensor, a pressure sensor, and a gas sensor, the same are disclosed at e.g. column 6, line 6. Elliot discloses that the process is carefully controlled. The controlled process aspects include the input fluid composition, temperature, and pressure. Inherent in controlling the same, is a means for monitoring the variables.

13. As to claim 57, disclosing a mixing chamber, element 524 in figure 16, and associated text, discloses the same, in the context of the claimed system.

14. As to claim 60, disclosing a holder for the substrate, a chuck (element 436) is disclosed in figure 15 and associated text.

Conclusion

The IDS is considered to fairly reflect the state of the art. The references, and others, include many disclosures of systems that use electromagnetic radiation to produce point of use reactants. Applicant is thanked for the comprehensive IDS.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gentle E. Winter whose telephone number is (703) 305-3403.

The examiner can normally be reached on Monday-Friday 7:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on (703) 308-4333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications. The direct fax number for this examiner is (703) 746-7746.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Gentle E. Winter
Examiner
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April 1, 2003

A handwritten signature in black ink, appearing to read "Randy Gulakowski", with a stylized flourish at the end.

RANDY GULAKOWSKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700